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E.O. 12958: DECL: 11/13/2019  
TAGS: [ENRG](#) [KNNP](#) [MNUC](#) [PARM](#) [TRGY](#) [KS](#)  
SUBJECT: ROK - SPENT NUCLEAR FUEL MANAGEMENT CONSULTATIONS  
WITHIN THE CONTEXT OF THE PRESIDENT'S NEW FRAMEWORK

Classified By: EAP A A/S JOSEPH DONOVAN, REASONS: 1.4 (B) and (D)

¶1. (U) This is an action request - see paragraph 2.

¶2. (C) Embassy is requested to contact appropriate interlocutors in MOFAT and MEST and convey the U.S. desire to hold the November 23-24 reprocessing consultations in the context of the U.S. proposal for an international framework on nuclear fuel services, as outlined by Deputy Secretary of Energy Poneman at the recent GNEP Executive Committee Meeting in Beijing. The United States believes that international cooperation in research and development must be seen as part of a broader strategy on spent fuel management. Post is requested to pass over the nonpaper in para 3, which further articulates U.S. thinking in this area. Post should also indicate that the United States intends to use its opening statement at the technical consultations to underscore this position and that it will provide a briefing on the broader program of R&D on spent fuel management as part of the Monday agenda.

¶3. (SBU) BEGIN TEXT OF NONPAPER:

New Framework for International Nuclear Fuel Services

The world needs new low-carbon baseload electric power to support worldwide economic development in an environmentally responsible manner. Nuclear power can play an important role in global efforts to combat climate change. A new international framework for civil nuclear cooperation could include the following elements:

-- Cradle-to-grave fuel services;

-- Interim-retrievable storage of used fuel in regional centers, with government assumption of the liability of the irradiated fuel in those centers; and

-- New R&D investments that could lead to technology that leapfrogs current thermal recycle schemes and provides safer, cleaner, more cost-effective access to the energy value of used fuel in a manner that supports nonproliferation goals.

Cradle-to-Grave (CTG) fuel services

A CTG approach could be considered as a new model for the provision of fuel services. This approach would require planning for the disposition of used fuel at the front-end of the fuel-cycle rather than the back-end. Although it is difficult for governments to mandate and manage this sort of change, they can act in concert to develop economic incentives to address the back-end of the fuel-cycle by offering CTG services. The creation of a variety of mechanisms could be considered whereby the supplier governments could assume the physical, legal, and financial liability for the used fuel, accepting its return and securely storing it until an appropriate path to final disposition is determined. For a CTG approach to work, governments would need to take responsibility for establishing workable solutions for used fuel management,

both for nations that already operate power reactors and for nations aspiring to build nuclear reactors. The following considerations may be useful for developing such solutions for used fuel management:

-- Expansion of reprocessing and recycle using the technologies available today has significant drawbacks. Current commercially-deployed aqueous reprocessing has significant costs, presents unique safeguards challenges, and has resulted in large and growing stocks of separated plutonium.

-- Adoption on a large scale of geological disposal of used fuel results in the loss of a potential future energy source, since used fuel typically contains approximately 90% of its original energy value. If global nuclear electricity production grows substantially over the next 50 to 100 years, the price of uranium may increase to the point where the reuse of the uranium and transuranics contained in the used fuel is economically viable. Countries therefore may decide not to dispose of used fuel in an irretrievable manner.

-- Retrievable storage in above-ground casks or underground facilities licensed for 50 to 100 years is an attractive option. This would be a safe and secure interim solution, providing time for research and development on advanced fuel cycle options that do not have the drawbacks of existing technologies. The future of nuclear energy and its fuel requirements will be clearer in the coming decades.

#### Storage for Today's Used-Fuel

Used fuel management and radioactive waste disposal have been a challenge to the nuclear industry since its inception. Improvements in fuel-cycle technologies may ultimately provide a fuller range of options to achieve a permanent solution to the waste problem. In addition to resolving the used fuel management questions for themselves, nations with mature nuclear programs could develop interim and permanent solutions for managing used fuel in concert with countries seeking nuclear energy. These solutions could include the following:

-- Implementing a safe, secure, and economical system for short-to-medium term storage of used fuel on the reactor site (or elsewhere in the same country). Dry cask storage is safe for today and well into the future.

-- Establishment of regional or international interim long-term storage facilities or repositories. Finding an appropriate location or locations meeting all technical and political requirements would be a significant challenge. While the location(s) would not have to be centralized, developing multiple sites could increase the political and public perception challenges as well as security risks. Conversely, multiple sites could increase the perception of fairness and improve the economics by lowering transportation costs and risks and by fostering competition.

-- Assumption of responsibility for used fuel by the supplier government. The take-back of used fuel by the supplying country presents a potential solution to the used fuel challenge. However, ultimately having the supplier assume responsibility for transfer of used fuel back to a location for safe disposition is not part of the current civil nuclear framework. For those suppliers that cannot take back used fuel, establishing commercial multinational business models that allow for "bundled" services could be feasible if governments band together to assume liability for supplied or obligated used fuel.

-- Continuing R&D efforts on advanced fuel-cycle and waste management technologies. These R&D efforts could help secure the benefits of extracting energy value from the uranium resource without the proliferation risk of existing technologies and may simplify waste disposition. Mechanisms for international collaboration could be expanded, with the goal of developing a substantially improved fuel cycle over

the next 20-30 years.

END TEXT OF NONPAPER.

¶4. (U) Department thanks post for its assistance with this matter.

CLINTON